REMARKS

Applicant thanks the Examiner for the time and courtesy extended during the recent telephonic interview with the undersigned. All of the previously pending claims, i.e., claims 1-4, 6-10, 12, 13, 33-38, 49-52, 57, 63 and 66-102 have been cancelled and new claims 103-139 have been added in order to expedite prosecution and advance the case towards issuance and in order to more fully protect the entire scope of the present invention. New claims 103-139 are fully supported by the application as filed and add no new matter.

I. The Written Description Rejection

Claims 1-4, 6-10, 12, 13, 33-38, 49-52, 57, 63, 66-72, 75, and 86-102 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking sufficient written description. The Examiner seems to indicate that in order to satisfy the written description requirement the claims must be limited: (a) to bridge molecules that are bispecific antibodies that bind to CD28 and 4-1BB co-stimulatory molecules; and (b) hepatocellular carcinoma cells and colon carcinoma cells as the tumor cells.

In order to expedite prosecution and advance the case towards issuance, new claims 103-139 refer to: (a) hepatoma carcinoma, lymphoma (see example 6.7, pages 40-42) or colorectal carcinoma cells which express one or more CD28 or 4-1BB molecules; and (b) an antibody with specific binding affinity to the CD28 or 4-1BB molecules and that has one or more binding sites for one or more gp55 antigens. In view of the above, Applicant respectfully submits that this issue is now moot.

II. The Enablement Rejection

Claims 33-38, 49-51, 57, and 63 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly not being enabled The Examiner states that the specification is enabling for a method of reducing growth of HEPA 1-6 hepatoma or EL-4 lymphoma or SMCC-1 colon carcinoma tumor cells in mice but that it does not reasonably provide enablement for a method of curing cancer in mice or in any other mammal patient including humans nor for a method of treatment of tumors that are not hepatoma, lymphoma or colon carcinoma in any mammal.

Applicant respectfully submits that this issue is now moot, as new claims 103-139 refer to a composition, rather than a method.

III. The Anticipation Rejections

Claims 1-4, 6, 8-10, 12, 13, 52, 66-67, 69, 70-72, and 86 stand rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by Shi et al. (Proc. Amer. Assoc. Cancer Res. March 1996, Volume 37, page 480, Abstract No. 3278). In addition, claim 7 stands rejected under 35 U.S.C. § 102(a) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Shi et al. as evidenced by Rink (Int. Arch. Allergy Immunol. 1996, Vol. 111, pages 199-209).

Applicant respectfully traverse to the extent that this rejection may be held to apply to new claims 103-139. The Examiner states that the previously submitted declaration is not sufficient because it allegedly fails to explain the nature of the contribution to the published reference of the other authors of the Shi et al. reference. Applicant respectfully disagrees. The declaration explains the nature of the non-inventor authors by stating that they performed experiments described in the publication under the direction and supervision of the inventor, Dr.

Yajun Guo. This is the same type of explanation provided in the In re Katz[1] decision, which states:

> On the record here, the board should not have engaged in further speculation as to whether appellant's view was shared by his co-authors but rather should have accepted that Chiorazzi and Eshhar were acting in the capacity indicated, that is, students working *under the direction and supervision of appellant*. From such a relationship, joint inventorship cannot be inferred in the face of sworn statements to the contrary. [Emphasis in original]

Thus, it is clear that Dr Yajun Guo concieved of the invention and is the sole inventor and that the other authors of the publication at most helped with reduction to practice and are not co-inventors. The declaration, therefore, is sufficient to demonstrate that the publication is not prior art against the presently claimed invention.

Even if the Shi et al. reference is incorrectly considered prior art against the present claim, it still fails to teach or suggest every limitation of new claims 103-139, which include the limitation from claim 75 that the antigens are gp55 antigens. Applicant notes that claim 75 was not rejected on prior art grounds even though the Examiner did make comments on page 7 of the Office Action that seem to imply the inclusion of gp55 antigens would be obvious without providing any evidence or reason why one skilled in the art would be so motivated. Nor has the Examiner previously considered a claim of the precise scope of new claims 103-139, which include a combination of various limitations including CD28 or 4-1BB molecules, a hepatoma, lymphoma or colorectal carcinoma cell, treatement with IFN-γ, TNF-α, or both, and gp55 antigens.

In view of the above, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection.

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[1] 687 F.2d 450, 455-456 (C.C.P.A. 1982).

IV. The Obviousness Rejections

Claims 1-4, 6-10, 12, 13, 33-38, 49, 52, 57, 63, 66, 67, 72, and 86-102 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,484,596 in view of Wang et al. and Vanky et al., both in view of Renner et al. or Bohlen admissions in the specification, Darlington et al., Chapoval et al. and Krummel et al. In addition, claims 68, 69, 70, and 71 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the references as applied above and further in view of Albeda et al., Ward et al. and Shi et al.

As noted above, new claims 103-139 include the limitation from claim 75 (which was not rejected on prior art grounds) that the antigens are gp55 antigens. New claims 103-139, also as noted above, include a combination of various limitations including CD28 or 4-1BB molecules, a hepatoma, lymphoma or colorectal carcinoma cell, treatement with IFN-γ, TNF-α, or both, and gp55 antigens.

In view of the above, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection.

V. The Provisional Double Patenting Rejections

Claims 1-4, 6-10, 12, 13, 33-38, 49-52, 57, 63, 66-72, 75, and 86-102, stand provisionally rejected under the judicially created doctrine of obviousness type double patenting as allegedly being unpatentable over claim 6, 10, 11, 7-9, of co-pending application no. 09/216,604. In addition, claims 1-4, 6-10, 12, 13, and newly added claims 66-72, 75, and 86-102 stand provisionally rejected under the judicially created doctrine of obviousness type double patenting as allegedly being unpatentable over claim 6 of co-pending application no. 09/216,062.

Applicant respectfully requests that the Examiner hold this matter in abeyance until the claims in this application are found otherwise allowable. Any further response at this time would be premature, as the claims in one or more of the applications might change prior to issuance.

CONCLUSION

Applicant believes that this Response will now place the application in condition for allowance. If the amount enclosed is incorrect, please charge or credit Baker & McKenzie Deposit Account No. 02-0410 in the appropriate amount. Should any issues remain unresolved, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

Charles S. Berkman
Attorney for Applicant
Reg. No. 38,077
c/o BAKER & McKENZIE
101 West Broadway
12th Floor
San Diego, California 92101
Telephone No.: (619) 236-1441

VERSION WITH MARKINGS TO SHOW CHANGES MADE

All of the pending claims, i.e., claims 1-4, 6-10, 12, 13, 33-38, 49-52, 57, 63 and 66-102, were cancelled without prejudice.

New claims 103-139 were added.

BAKER & McKENZIE
Attorneys at Law
101 West Broadway, Twelfth Floor
San Diego, CA 92101
Telephone: 619-236-1441
Facsimile: 619-236-0429

DATE: April 3, 2001		CLIENT/MATTER NO.: 67146403-1007	
RECIPIENT	**COMPANY**	**FAX NO.**	**PHONE NO.**
1. M. DiBrino	U.S.P.T.O.	703 305 7401	703 308 0061

FROM:	USER NO.	PHONE NO.
Charles S. Berkman		619 236-1441

Re:

Total number of pages including this page: **16.**

MESSAGE:

Response to Office Action enclosed.